



**Minutes from AYC KHF Handicap Committee Meeting
October 16, 2007**

HC Committee Attendance: J. Johnstone
R. Shull
J. Maddalozzo
Bob Myers
JoAnn Welles

Not Attending: Tom Lappin

Presenters: Steve Vaughn
Larry Ratliff

1. Call to order at 7:05 PM.
2. There was a September meeting where one boat was rated, the data for it is included in these minutes.
3. A proposal to review South Coast 21 (SC 21) base rating was presented by Steve Vaughn and Larry Ratliff from the Keel Handicap fleet. Steve presented data (attached) on the measurements of the SC 21 compared to its “stock” configuration and performance data for the SC 21 compared to the J/22, J/24, Ensign, and Catalina 22. Steve suggested that the rating for the SC 21 at 252 was at least 21 sec too high when compared to its average performance versus other boats sailing the same course.

The method used was to compare elapsed times of the top two finishers in the SC 21 fleet and another fleet in 18 separate races sailed over the past 4 years on Lake Travis. The races were selected at random from among those that met the criteria of having legible start and finish times and the same course for SC 21 and comparison fleets.

The top two finishers in the SC 21 and comparison fleet were compared based on elapsed time and the adjustment in handicap required to make the corrected finish times equal was calculated using Time difference over course distance to compute seconds per mile.

Using data from all races where comparisons could be made, an average adjustment was computed for each class of boats compared to the SC21. The adjustment averages ranged from a 21 sec to a 62 sec decrease in the SC 21 rating.

Larry Ratliff agreed to provide a copy of the score sheets and a soft copy of the scoring analysis to the committee.

Following the presentation, the Handicap committee discussed the data and decided there was sufficient new performance data to review the SC21 base PHRF rating. This item will be covered at the open meeting in November.

4. New and renewed ratings – see table

Sail No.	Boat Type	Boat Name	Owner	PHRF	Rating Type
159	San Juan 7.7	Vitamin Sea	David Lewis	192	Official
219	San Juan 28	Blue Duck	Remus Broussard	177	Provisional
139	Allmand 31	Ecstasy II	Don Mohr	189	Official
19	Capri 25	Joy Ride	Dylan Mankey	168	Provisional

5. The Leukemia cup handicappers will be Bob Myers and Jim Johnstone
6. The meeting was adjourned at 8:40 PM

10/16/07

Information pertaining to the PHRF Handicap of the South Coast 21

As Keel Fleet Captain I have received many comments/concerns from Fleet members that they feel the SC21 PHRF rating is too favorable to the South Coast 21 and is affecting participation. To address these concerns I offered to help collect some hard data to understand if concern is well founded. My initial observation was the vast majority of boats in the SC21 fleet have made a number of significant modifications to their boats that could result in a lighter boat than was rated in 1977/78.

Weight Measurement

The most obvious modifications to the SC21 appear to be focused on weight reduction; consequently the first data I sought was measuring the weight of "typical" SC21's. These weight measurements were to determine if the observed modifications created a significantly lighter boat than was rated in 1977/78. The weight measurements were on two SC21's one (Hector Lujan's #157) that has modifications typical of nearly all of the fleet, (ie removal of 1) most of the interior accommodations, 2) comings/winch pads deck hardware, 3) framed windows, 3) lights/wiring batteries, 4) companion way boards/covers and weight reduction of standing rigging). The second measured boat was Duane Dobson's #84. Both boats were weighed without sails or other interior items such as tool boxes, or coolers or supplies. Sails were measured separately. In addition Duane provided the weight scale receipts from 1974 when his boat was measured for MORC rating. The initial intention was to weigh several other SC21's to better determine variations but with such large variations from each other I felt that today's modified SC21 bears little performance relationship to the originally rated boats. In addition to alternatively check the measured weight differences, the freeboard of all SC21's in the harbor was measured and found that #84 floated approximately 1" lower in the water than any other harbor boat. The collected data is included in the attached table that includes key measurement information for other similar length boats racing at AYC.

I do not suggest we draw rating conclusion solely on measurement data if performance data is available, however the significant weight reduction of the Modified SC21 clearly requires a performance review of the Modified SC21

Performance Review

The second action taken was to review recent performance data on the SC21's. Since the amount of data we have in handicap races is limited and sporadic, our focus was on comparative data between SC21's racing one design with other one design classes with broader handicap information. (ie J22/J24/Ensigns). To gather this data Larry Ratliff scored 18 randomly selected OD races over the past 3 years using PHRF time on time. The random selection method was limited in as much as to only select AYC series races where SC21's shared the same courses with at least one other OD class. The results of scoring these races as PHRF handicap races and a handicap comparison is attached. The summarization averages the top two finishers corrected times in each fleet and the calculated handicap rating difference to have these average corrected times become equal. Using the average of the top two finishers minimizes the effect of a single boat or skipper.

Based on this performance analysis my recommendation to the handicap committee is to immediately create a new provisional PHRF handicap for the Modified SC21 (SC21M) between 225 and 231 and keep the boat under review as a provisional rating. It does not appear there is sufficient performance data yet to change the SC21 rating on unmodified boats.

SC21 handicap review 100707.doc

10/16/07

Measurement Parameters

	PHRF	DISP (lbs)	LOA (ft)	LWL (ft)	SA ft ² 100% Fore Tri	SA/DISP (see note 5)	DISP/LGTH (see note 6)
SC 21 #84 ³	252	2027	21.3	14.3 (eff 17)	191	19.1	309 (184 eff lgth)
SC 21#84 ¹	252	1860	21.3	14.3 (eff 17)	191	20.2	284 (169 eff lgth)
SC21 US Sail ²		1750	21.3	14.3 (eff 17)	191	21.4	267 (159 eff lgth)
SC21 #157 ³		1477	21.3	14.3 (eff 17)	191	23.6	225 (134 eff lgth)
J22	174	1790 ⁴	21.3	19	223	24.2	116
Impluse 21	180	1300	21	18	208	27.9	99.5
Holder 20	186	1160	20.3	17.5	198	28.7	96.6
Santana 20	222	1350	20.2	16(eff 17)	186	24.4	147 (123 eff lgth)
Ensign	252	3000	22.5	16.8 (eff 19)	223	18.9	284 (195 eff lgth)
Catalina 22	270	2250	21.6	19.3	205	19.1	139

1. SC21 #84 weight by certified scale in 1974
2. SC21 weight as listed on US Sailing PHRF web site
3. Weight by calibrated scale at AYC, September 2007
4. Includes class rules listed on board equipment
5. $SA/DISP = SA(ft^2) / (Disp(ft^3))^{2/3}$
6. $DISP/LGTH = (Disp(lbs)/2240)/(.01xLght(ft))^3$

Short Order
 J
 SC
 Cat
 FN

File: OD_Comparison.rw
 Comparison of One Design performance.
 Using Time on Time scoring and a B Factor of 550.
 Class: Test 1. PHRF (Time on time)

Race 1

Start Time: Sunday, October 31, 2004 14:45:00

Pos	Order	Sail	Boat	Skipper	PHRF	Club	Type	Finish	Elapsed	Corrected	Score	Division
1	5	162S	BLUE BELL	Cockle, John	252	AYC	SC 21	15:31:32	00:41:32	00:36:15	1	SC21
2	6	166S	SOUTHCOAST 21	Shull, Ray	252	AYC	SC 21	15:31:47	00:41:47	00:36:28	2	SC21
3	8	101S	ROCK STAR	KUC, J.	252	AYC	SC 21	15:32:22	00:42:22	00:36:59	3	SC21
4	1	2380	SUPERMAN	Broadway, Dave	168	AYC	J24	15:23:40	00:38:40	00:37:42	4	J24
5	2	791	RUNNIN ON EMPTY	HARDEN, B.	168	AYC	J24	15:24:04	00:39:04	00:38:05	5	J24
6	9	69S	WALK'N ON WATER	McDavitt, Linda	252	AYC	SC21	15:33:41	00:43:41	00:38:08	6	SC21
7	10	144S	SOUTHCOAST 21	Wilson, Dan	252	AYC	SC 21	15:33:46	00:43:46	00:38:12	7	SC21
8	11	146	SC21	Fink, Ian	252	AYC	SC21	15:35:48	00:45:48	00:39:59	8	SC21
9	3	2018	AMMO BOX	Mancuso, Joe	168	AYC	J24	15:26:07	00:41:07	00:40:05	9	J24
10	12	36S	SOUTHCOAST 21	Powell, Doug	252	AYC	SC 21	15:36:23	00:46:23	00:40:29	10	SC21
11	13	163S	WT	Musselman, Bob	252	AYC	SC 21	15:36:24	00:46:24	00:40:30	11	SC21
12	14	140S	SOUTHCOAST	KILPATRICK	252	AYC	SC21	15:36:35	00:46:35	00:40:40	12	SC21
13	15	169	COASTING AROUND	MCDONALD, B	252	AYC	SC 21	15:36:49	00:46:49	00:40:52	13	SC21
14	4	1997	OUT OF CONTROL	Burke, Stephen	168	AYC	J24	15:27:40	00:42:40	00:41:36	14	J24
15	16	199S	SOUTHCOAST 21	Feagin, Pat	252	AYC	SC 21	15:37:52	00:47:52	00:41:47	15	SC21
16	7	5319	MR. HAPPY	HARDEN/NEL	168	AYC	J24	15:31:07	00:46:07	00:44:58	16	J24
DNC		36	SC 21	POWELL	252	AYC	SC 21					SC21
DNC		84	SC 21	Dobson	252		SC 21					SC21
DNC		18	SC 21	Bobeck, Camden	252		SC 21					SC21
DNC		449	J22	Unknown	174		J22					J22
DNC		578	NO NAME	Groll, Tom	252	AYC	Ensign					Ensign
DNC		324	J SEAGULL	Baker, Johnathan	252	AYC	Ensign					Ensign
DNC		588	FLYING DUTCHMAN	Dahmen, Frans	252	AYC	Ensign					Ensign
DNC		207	J24	Unknown	168		J24					J24
DNC		255	E. W.M.A.N.	Reynolds, Nelson	168	AYC	J24					J24
DNC		739	ELECTRA	JOLLY, K.	252	AYC	P ELECTRA					Ensign
DNC		120	IMPETUOUS	MITCHELL, B	174	AYC	J22					J22
DNC		124	GI JOE	Bartlett, Claudia	252	AYC	SC 21					SC21

1:33 → -295%

42:22
 38:40
 3:42 + 4:5
 4:25 = 3:15 nm
 81.5m

Summary of 18 OD AYC Series Races Scored PHRF Time on Time

Race #	Date	Course	Race	Wind Dir.	Wind Speed	RC Duty	Number of Competing Boats			SC HCP change for top 2 boats/fleet to tie 1st place								
							SC	J24	J22	J24	J22	EN	C22	EN	C22			
Race 1	10/31/2004	W2	Fall Series #5-1, 2004	180	14 - 17 kn	B Fleet	11	5				-29						
Race 2	10/31/2004	W3	Fall Series #5-2, 2004	175	12 - 13 kn	B Fleet	11	3				-21						
Race 3	10/17/2004	W2	Fall Series #3-1, 2004	180	12 kn	Ensign	8	3	3	8		-8			-81			
Race 4	4/2/2006	W2	Spring Series #4-1, 2006	220	4 - 8 kn	Non-Spin	7	6	2	6	8	-59	-33	-102	-62			
Race 5	4/2/2006	W1	Spring Series #4-2, 2006	295	4 - 8 kn	Non-Spin	6	6	6	9		101	52	-184	-184			
Race 6	6/11/2006	W2	Summer Series #3-1, '06	130	5 - 10 kn	Cat 22	9	4	2	6		-27	-57	48	-7			
Race 7	6/11/2006	W1	Summer Series #3-2, '06	135	7 - 10 kn	Cat 22	8	4	3	6		-38	-26	-109				
Race 8	7/15/2006	W1	Dog Days #1, 2006	170	3 kn	Non-Spin	5	11	1	4	2							
Race 9	8/5/2006	W2	Dog Days #3, 2006	150	<10kn	CBH	4	11	4	3	3	52	68	18	-31			
Race 10	6/12/2005	W2	Summer Series #3, '05	150	10 - 12 kn	Unk	7	6	4	6		7	-53	-23	-89			
Race 11	6/19/2005	W2	Summer Series #4-1, '05	135	7 - 8 kn	B Fleet	7	5	5	4								
Race 12	6/19/2005	W2	Summer Series #4-2, '05	135	7 - 8 kn	B Fleet	9	5	5	4		-16						
Spring 07 R1	2/25/2007	W1	Spring Series #1-1, 2007	160	<5kn	Cat 22	7	1	5	6		-106	-90	-69				
Spring 07 R2	2/25/2007	W1	Spring Series #1-2, 2007	160	<5kn	Cat 22	7	6	6	6					-235			
Spring 07 R3	3/11/2007	W2	Spring Series #2-1, 2007	120	8 kn	Ensign	6	5	2	7		-9	-34		-55			
Spring 07 R4	3/11/2007	W1	Spring Series #2-2, 2007	120	8 kn	Ensign	6	6	7	7					-62			
Spring 07 R7	3/25/2007	W2	Spring Series #4-1, 2007	140	15kn	A Fleet	7	3	4	6	8	-22	-10	-21	-41			
Spring 07 R9	4/1/2007	W2	Spring Series #5-1, 2007	SE	7kn	J24	10	3	6	11					-35	-18	-11	
							Average	135	72	26	64	68						
							Median											

Average w/o inclusion of highlighted races
 Median w/o inclusion of highlighted races

Average -13 -17 -52 -68
 Median -18.5 -33.5 -24 -62

Average w/o inclusion of highlighted races -20.9 -33.8 -21 -59.2
 Median w/o inclusion of highlighted races -21 -34 -21 -62

- Notes:
- 0) Races 5,6,9,R1 and R2 appear to have data recording errors
 - 1) Races selected randomly but only ones that included SC21 participation
 - 2) SC-21's won 10 of 13 (76%) that do not contain suspected errors, or 13 of 18 (72%) of all races
 - 3) In these 18 SC races 8 different skippers 1st place finishers Shull won 4 of 14, Bartlett won 7 of 11, Burke won 2 of 3
 - 4) Race 6, data requires J24 to average 6.5 knts in 5 to 10 knts of wind -- likely a misrecording of starting times
 - 5) Race 9 data requires J24 to average 6.7 knts in 10+ knts of wind-- likely at misrecording of starting times
 - 6) Race Spring 07R1 shows SC21 average 7.44knts in <5knts wind--likely a misrecording of starting times
 - 7) Race 5 and Spring 01R2 likely have misrecording of start times due to the large variance
 - 8) Total race interactions SC/J24=178, SC/J22=89, SC/Ensign=148, SC/Cat22=141

OD_Comparison_wHCP2_delta.xls